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KHARE, ATUL P				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/561,708

Applicant(s)

SPICKEMANN ET AL.

Examiner

ATUL KHARE

Art Unit

4191

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 December 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7, 9-19, 21, and 22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6, 13-18 and 21 is/are rejected.
- 7) ☒ Claim(s) 7, 9-12, 19 and 22 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB08)
- Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
- Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Summary

1. This is a first office action on the merits. The preliminary amendment filed December 21, 2005 has been entered.
2. Claims 1 - 7, 9 - 19, 21, and 22 are pending.
3. Claims 8 and 20 have been cancelled by applicant.

Specification

4. The abstract of the disclosure is objected to because of the following informalities: the term "calcium" is incorrectly referred to as "calium". Correction is required. See MPEP § 608.01(b).
5. The disclosure is objected to because of the following informalities: The term "in" is capitalized in the middle of a sentence in paragraph 0010. Appropriate correction is required.

Claim Objections

1. Claim 1 is objected to because of the following informalities: Two separate sections of the claim are listed as being part (b). Appropriate correction is required.
6. Claim 14 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. The claim states that the size of the DSG particles is within the range of 0.1 - 1000 microns. The parent claim states the same exact size range for the DSG particles.

7. Claims 7, 9-12, 19, and 22 are objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim cannot depend on any other multiple dependent claim. See MPEP § 608.01(n). Accordingly, the claims have not been further treated on the merits.

Claim Rejections - 35 USC § 112

8. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

9. Claims 1 – 6, and 21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 1 - 6 use the term “uncalcined gypsum”, which is not defined in the disclosure and not well-known to a person having ordinary skill in the art. According to the attached Material Safety Data Sheet (MSDS #52-510-016), a synonym for “uncalcined gypsum” is calcium sulfate dihydrate. The examiner will use this synonym to further examine the claims.

Since claim 21 depends on claim 1, and claim 1 uses the term “uncalcined gypsum” as stated in the rejection above, claim 21 is rendered indefinite for the same reason.

10. Claims 13, 14, and 22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The term “at least some” in claims 13 and 14 is a relative term which renders the claim indefinite. The term “at least some” is not defined by the claim, the specification

does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

In claim 13, the term "at least some" refers to the specific surface area of the DSG. Since the term does not define an amount of DSG that has a specific surface area that falls within the stated range, this range is rendered indefinite.

In claim 14, the term "at least some" refers to the particle size distribution of the DSG. Since the term does not define an amount of DSG that has a particle size distribution that falls within the stated range, this range is rendered indefinite.

11. Claim 22 recites the limitation "the composition" in claim 10. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

12. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

13. Claims 1 - 6, 13 - 16, and 21 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by DELEUIL, US Patent 4,221,599.

14. In light of applicant's preamble for claim 1 regarding preparing gypsum board, at column 1 lines 12 – 20 of the prior art, the process described by DELEUIL is in relation to preparing modular construction building units made from compositions of gypsum and plaster.

The element of claim 1 regarding combining calcium sulphate hemihydrate with water to form an aqueous slurry, and subsequently adding uncalcined gypsum to said slurry is taught at column 2 lines 55 - 57 of the prior art whereby a product made by plaster and gypsum comprises plaster, gypsum, and water. At column 4 lines 33 - 35, the prior art states that the plaster may be made from a semihydrate (hemihydrate) calcium sulphate. Therefore, the scope of the prior art in this case encompasses applicant's limitation of first mixing stucco with water, and subsequently adding uncalcined gypsum to the mixture.

The element of claim 1 regarding discharging the slurry onto a support so as to form a sheet is taught at column 2 lines 55 - 68 of the prior art whereby the mixture of plaster, gypsum, and water is charged into a mold cavity, and the resultant shaped article, or modular construction unit, is then removed after a short period of time.

The element of claim 1 regarding specific surface area of the uncalcined gypsum being below $0.3 \text{ m}^2/\text{g}$ is taught at column 4 lines 24 - 27 of the prior art whereby the claimed range overlaps with that which is stated in the prior art: $200 - 6,000 \text{ cm}^2/\text{g}$ (or $0.02 - 0.6 \text{ m}^2/\text{g}$).

The element of claim 1 regarding particle size distribution range of $0.1 - 1000$ microns is taught at column 4 lines 52 - 55 of the prior art whereby the claimed range encompasses that which is stated in the prior art: $20 - 100$ microns.

15. Claims 2 and 3 are taught at column 4 lines 24 - 27 of the prior art whereby the claimed range of $0.1 - 0.299 \text{ m}^2/\text{g}$ of claim 2 and $0.1 - 0.2 \text{ m}^2/\text{g}$ of claim 3 for specific

surface area overlaps with that which is stated in the prior art: 200 - 6,000 cm²/g (or 0.02 - 0.6 m²/g).

16. Claim 4 is taught at column 4 lines 59 - 66 of the prior art whereby the method of drying uncalcined gypsum prior to adding it to the slurry of calcium hemihydrate and water is described. More specifically, the prior art indicates that a "phosphoplaster" can be created by drying a phosphogypsum (uncalcined gypsum) for use in the mixture of plaster, gypsum, and water to make a plaster/gypsum product.

17. Claim 5 is taught at column 2 lines 55 - 57 of the prior art whereby a product made by plaster and gypsum comprises plaster, gypsum, and water. At column 4 lines 33 - 35, the prior art states that the plaster may be made from a semihydrate (hemihydrate) calcium sulphate. Therefore, the scope of the prior art in this case encompasses applicant's limitation of first mixing stucco with water, and subsequently adding uncalcined gypsum to the mixture.

18. Claim 6 is taught at column 5 lines 39 - 42 of the prior art whereby the claimed range of 5 - 50 weight percent of uncalcined gypsum to calcium sulphate hemihydrate overlaps with that which is stated in the prior art: 30 - 99 weight percent of gypsum (uncalcined) to plaster (calcium sulphate hemi/semi-hydrate).

19. The element of claim 13 regarding using a synthetic form of gypsum (desulphurisation gypsum, or DSG) in the stucco/gypsum mixture is taught at column 3 lines 41 - 46 of the prior art whereby the utilization of a synthetic gypsum originating from the neutralization of acidic industrial effluents by lime is described. The prior art also states that these acidic effluents can be of diverse origin. At paragraph 0003 of the

applicant's disclosure, applicant describes DSG, the most commonly used form of gypsum, as being formed by the flue-gas desulphurization process used at a number of coal burning power stations to remove sulfur dioxide (an acidic component) from the effluent. Therefore, the synthetic gypsum described in the prior art encompasses the use of DSG as described by applicant.

The element of claim 13 regarding specific surface area of the DSG being below $0.3 \text{ m}^2/\text{g}$ is taught at column 4 lines 24 - 27 of the prior art whereby the claimed range overlaps with that which is stated in the prior art: $200 - 6,000 \text{ cm}^2/\text{g}$ (or $0.02 - 0.6 \text{ m}^2/\text{g}$).

The element of claim 13 regarding particle size distribution range of $0.1 - 1000$ microns is taught at column 4 lines 52 - 55 of the prior art whereby the claimed range encompasses that which is stated in the prior art: $20 - 100$ microns.

20. Claim 14 is taught at column 4 lines 52 - 55 of the prior art whereby the claimed particle size distribution range of DSG is between $0.1 - 1000$ microns, which encompasses that which is stated in the prior art: $20 - 100$ microns.

21. Claim 15 is taught at column 5 lines 39 - 42 of the prior art whereby the claimed range of $5 - 50$ weight percent of DSG to stucco overlaps with that which is stated in the prior art: $30 - 99$ weight percent of gypsum to plaster (stucco).

22. Claim 16 is taught at column 5 lines 39 - 42 of the prior art whereby the claimed range of about $10 - 30$ weight percent of DSG to stucco overlaps with that which is stated in the prior art: $30 - 99$ weight percent of gypsum to plaster (stucco).

23. The element of claim 21 regarding creating a cementitious product by combining calcium sulphate hemihydrate with water to form an aqueous slurry, and subsequently

adding uncalcined gypsum to said slurry is taught at column 2 lines 55 - 57 of the prior art whereby a product made by plaster and gypsum comprises plaster, gypsum, and water. At column 4 lines 33 - 35, the prior art states that the plaster may be made from a semihydrate (hemihydrate) calcium sulphate. Therefore, the scope of the prior art in this case encompasses applicant's limitation of first mixing stucco with water, and subsequently adding uncalcined gypsum to the mixture.

The element of claim 21 regarding specific surface area of the uncalcined gypsum being below $0.3 \text{ m}^2/\text{g}$ is taught at column 4 lines 24 - 27 of the prior art whereby the claimed range overlaps with that which is stated in the prior art: $200 - 6,000 \text{ cm}^2/\text{g}$ (or $0.02 - 0.6 \text{ m}^2/\text{g}$).

The element of claim 21 regarding particle size distribution range of $0.1 - 1000$ microns is taught at column 4 lines 52 - 55 of the prior art whereby the claimed range encompasses that which is stated in the prior art: $20 - 100$ microns.

Claim Rejections - 35 USC § 103

24. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

25. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.

2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

26. Claims 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over DELEUIL US Patent 4,221,599.

27. With respect to claims 17 and 18, applicant states at paragraph 0008 of the disclosure that it is known in the art that in the production of plasterboard, it is possible to enhance certain mechanical properties such as sound absorbing qualities by changing the percentage of natural gypsum. DELEUIL discloses at column 5 lines 39 - 42 that a weight percent of 30 - 99 of gypsum to plaster (stucco) is used. What DELEUIL does not disclose is a weight percent of gypsum to stucco according to claim 17 between 10 - 20 weight percent, or claim 18 around 20 percent. However, according to MPEP 2144.05, it is not inventive to discover the optimum ranges by routine experimentation. Therefore, the ranges of 10 - 20 weight percent of gypsum to stucco in claim 17 and about 20 weight percent of gypsum to stucco in claim 18 are considered to be *prima facie* obvious because one of ordinary skill in the art would want to optimize the teachings of DELEUIL in order to improve the properties of the composition such as water repellency (column 2 lines 16 - 34 of the prior art), and are rejected under 35 U.S.C. 103(a).

Conclusion

28. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ATUL KHARE whose telephone number is (571)270-

7608. The examiner can normally be reached on Monday-Thursday 7:30 a.m. - 5:00 p.m. EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Barbara Gilliam can be reached on (571)272-1330. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/ATUL KHARE/
Examiner, Art Unit 4191

/Barbara L. Gilliam/
Supervisory Patent Examiner, Art Unit 4191